

APR 26 2007

Application No. 10/530,991

Response to Office Action

*AMENDMENTS TO THE CLAIMS*

Cancel claim 4, without prejudice;

Rewrite claims 1-3, 6, 7 and 9; and

Add the following new claims 11 and 12.

1. (Currently Amended) A spray device comprising:

a body having a liquid discharge passage;

a spray nozzle assembly affixed to the body, the spray nozzle assembly including a liquid spray tip for directing liquid from the liquid passage in the body into a predetermined spray pattern and an atomizing [[fluid]] air cap, [[the]] said liquid spray tip including a forwardly extending nose portion that defines a liquid discharge orifice, the nose extending through a central opening in the air cap thereby defining an annular atomizing [[fluid]] air discharge orifice that communicates with an atomizing [[fluid]] air inlet, [[the]] said nose extending in a downstream direction past the central opening in the air cap such that [[the]] said liquid discharge orifice is arranged downstream of said annular atomizing air discharge orifice a distance the greater of at least approximately 2 mm. downstream of the annular atomizing fluid discharge orifice or approximately 1 mm plus the diameter of the liquid discharge orifice.

2. (Currently Amended) The spray device according to claim 1 wherein the atomizing [[fluid]] air cap includes a pair of opposed angled fan atomizing [[fluid]] air passages each having a respective fan discharge orifice that is located upstream of the annular atomizing [[fluid]] air discharge orifice and the liquid discharge orifice.

3. (Currently Amended) The spray device according to claim 2 wherein the atomizing [[fluid]] air cap includes an end face having a pair of V-shaped cutouts therein on opposite sides of the atomizing [[fluid]] air discharge orifice, [[each]] said fan air passages discharge orifices each being arranged in an angled side of a respective one of the V-shaped cutouts so as to direct atomizing [[fluid]] air towards [[the fluid]] liquid discharging from the [[fluid]] liquid discharge orifice.

4. (Canceled)

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5. (Original) The spray device according to claim 1 further including a valve needle supported in the body for movement between a retracted open position for permitting liquid discharge through the liquid spray tip and a closed position for preventing liquid discharge through the liquid spray tip.

6. (Currently Amended) A spray device comprising:

a body having a liquid discharge passage;

a spray nozzle assembly affixed to the body, [[the]] said spray nozzle assembly including a liquid spray tip for directing liquid from the liquid passage in the body into a predetermined spray pattern and an atomizing fluid air cap, [[the]] said air cap having a downstream coplanar end face with no portion of the air cap extending downstream of the end face, said liquid spray tip including a forwardly extending nose portion that defines a liquid discharge orifice, [[the]] said nose extending through a central opening in [[the]] said air cap end face thereby defining an annular atomizing fluid air discharge orifice that communicates with an atomizing fluid air inlet, the atomizing fluid air cap including a pair of opposed angled fan atomizing fluid passages each having a respective fan discharge orifice that is located upstream of the annular atomizing fluid of said end face, said annular atomizing air discharge orifice, and [[the]] said liquid discharge orifice for directing air on opposed sides of the liquid discharging from said liquid discharge orifice.

7. (Currently Amended) The spray device according to claim 6 wherein the atomizing fluid said air cap [[includes an]] end face [[having]] has a pair of V-shaped cutouts therein on opposite sides of [[the]] said annular atomizing [[fluid]] air discharge orifice, each said fan discharge orifice [[being arranged in]] extending in perpendicular relation through [[an]] a respective angled side of [[a respective]] one of the V-shaped cutouts so as to direct atomizing [[fluid]] air towards the fluid discharging from the fluid liquid discharging from said liquid discharge orifice.

8. (Original) The spray device according to claim 6 further including a valve needle supported in the body for movement between a retracted open position for permitting

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liquid discharge through the liquid spray tip and a closed position for preventing liquid discharge through the liquid spray tip.

9. (Currently Amended) A spray device comprising:

a body having a liquid discharge passage;

a spray nozzle assembly affixed to the body, [[the]] said spray nozzle assembly including a liquid spray tip for directing liquid from the liquid passage in the body into a predetermined spray pattern and an atomizing [[fluid]] air cap, [[the]] said liquid spray tip including a forwardly extending nose portion that defines a liquid discharge orifice, [[the]] said nose extending through a central opening in the air cap thereby defining an annular atomizing [[fluid]] air discharge orifice that communicates with an atomizing [[fluid]] air inlet, [[the]] said nose extending in a downstream direction past the central opening in the air cap such that the liquid discharge orifice is arranged downstream of said annular atomizing air discharge orifice a distance [[of]] at least the greater of approximately 2 mm. or approximately 1 mm. plus the diameter of the liquid discharge orifice ~~downstream of the annular atomizing fluid discharge orifice~~, [[the]] said atomizing [[fluid]] air cap including a pair of opposed [[angled]] fan atomizing fluid passages each having a respective fan discharge orifice that is located upstream of the annular atomizing [[fluid]] air discharge orifice and [[the]] liquid discharge orifice and at an angle to a longitudinal axis of said annular atomizing air discharge orifice.

10. (Original) The spray device according to claim 9 further including a valve needle supported in the body for movement between a retracted open position for permitting liquid discharge through the liquid spray tip and a closed position for preventing liquid discharge through the liquid spray tip.

11. (New) The spray device according to claim 1 in which said air cap has a downstream coplanar end face with no portion of the air cap extending downstream of the end face, said annular air discharge orifice being formed in said end face, and said fan air discharge orifices being located upstream of said end face, said annular atomizing air discharge orifice, and said liquid discharge orifice.

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12. (New) The spray device according to claim 9 in which said air cap has a downstream coplanar end face with no portion of the air cap extending downstream of the end face, said annular air discharge orifice being formed in said end face, and said fan air discharge orifices being located upstream of said end face, said annular atomizing air discharge orifice, and said liquid discharge orifice.

This listing of claims replaces all prior versions, and listings, of claims in the application.